



Reading Horizons: A Journal of Literacy and Language Arts

Volume 22
Issue 3 April 1982

Article 9

4-1-1982

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Recommended Citation

Harber, J. R. (1982). Perceptual and Perceptual-Motor Test Scores are Not a Clue to Reading Achievement in Second Graders. *Reading Horizons: A Journal of Literacy and Language Arts*, 22 (3). Retrieved from https://scholarworks.wmich.edu/reading_horizons/vol22/iss3/9

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PERCEPTUAL AND PERCEPTUAL-MOTOR TEST SCORES ARE NOT A CLUE TO READING ACHIEVEMENT IN SECOND GRADERS

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Recent studies have questioned the effectiveness of perceptual training programs in remediating reading difficulties (Cohen, 1969; Hammill, 1972; Larsen & Hammill, 1975; Mann, 1970). Gupta, Ceci, and Slater (1978) present two possible explanations for the apparent failure of these programs. It could be that the programs have not effectively trained children in those perceptual-motor skills in which they are deficient. On the other hand, it could be that poor readers simply do not suffer from perceptual-motor handicaps and therefore do not need nor benefit from these types of training.

There is recent empirical evidence which supports the second explanation. Larsen, Rogers, and Sowell (1976) and Harber (1979) compared the performance of normal and disabled learners on numerous perceptual and perceptual-motor tests and found that the two groups did not show educationally significant differences on these tests. Other researchers have also argued that factors other than perceptual difficulties may be responsible for poor reading performance (e.g., Vellutino, Steger, Moyer, Harding, & Niles, 1977; Wallace & Goldsmith 1977). Lakey and McNees (1975) and Lakey and Lefton (1976) studied good and poor readers' performance on visual matching tasks. They asked their subjects to select from a number of alternatives the individual letters, words, and strings of letters of varying lengths, or stings of squiggles which were identical to the stimulus items. They found that as the length of the strings increased, so did the difference between the performance of groups of poor and good readers. (Lakey & Lefton, 1976)

Gupta et al (1978) hypothesized that the differences reported by Lakey and Lefton may be due to differences in cognitive, rather than perceptual, strategies. They suggested that good readers perform better than poor readers because they are able to use their verbal skills to facilitate performance on tasks frequently labeled as perceptual. In order to test their hypotheses, they conducted two studies. In the first study, they investigated the performance of groups of good and poor readers on a matching task which contained letter strings of variable length and on a matching task which contained abstract figures. Their findings showed no differences between good and poor readers on the abstract figures task, but significant differences between the two groups on the letter strings task. They interpreted these findings as indicative of subjects' use of non-perceptual (i.e., verbal) strategies to aid in the matching of letter strings. In the second study, they administered three matching tasks, one containing nonsense shapes; one, strings of consonants; and

one, pronounceable letter strings, to good and poor readers. They found that the nonsense shapes task did not differentiate between the two groups. However, the more closely the task approximated words, the larger the differences between groups. Their results appear to support Bridger's (1970) caution that the role of higher cognitive functions should be ruled out before it is assumed that a deficiency in perception exists.

The research findings reviewed above suggest that the reason poor readers may not benefit from perceptual training programs may be that they already possess the very skills educators are attempting to develop, and do not need this training. The present study attempts to further clarify this issue by determining whether children who are achieving at various reading levels score differently on perceptual and perceptual-motor tasks.

What Was Tested

One hundred and four second graders (mean chronological age = 90 months; mean intelligence quotient = 109) served as subjects in this study. The Reading Recognition and Reading Comprehension subtests of the Peabody Individual Achievement Test (PIAT) (Dunn & Markwardt, 1970) were administered to all the subjects in order to determine their reading achievement levels. The Reading Recognition subtest includes visual discrimination of letters and words, naming of letters, and oral reading of single words. In the Reading Comprehension subtest the child reads a sentence silently and then chooses from four illustrations the one that best represents the meaning of the sentence just read. A composite reading score was determined for each subject by summing the obtained raw scores on the Reading Recognition and Reading Comprehension subtests. Three groups were formed on the basis of the composite scores. The mean raw scores were: low group, 40; middle group, 50; high group, 68.

The Motor Free Visual Perception Test (MFVPT) (Colarusso & Hammill, 1972) was used to measure visual perception. The MFVPT is a multiple choice test on which subjects respond to test items by pointing to the correct one of four alternatives for each item. The MFVPT was selected for use because it assesses visual perception without involving motor ability.

The Developmental Test of Visual-Motor Integration (VMI) (Beery and Buktenica, 1967) was used to measure perceptual-motor integration. The VMI consists of a series of geometric forms arranged in order of increasing difficulty to be copied by the child.

Data were analyzed utilizing separate one-way analyses of covariance (ANCOVAS). Intelligence test scores and chronological age were the covariates. ANCOVA procedures were used in order to compare the performance of the three groups of readers on the perceptual and perceptual-motor tasks without the possibly contaminating influence of intelligence and age. Tukey HSD comparisons were computed in order to determine which differences were significant.

Findings

The results of the ANCOVAS indicated that there were statistically significant differences among the three groups in performance on the perceptual and perceptual-motor tasks ($F = 18.87$, $p < .0001$,

MFVPT; $F = 19.29$, $p .0001$, VMI). The results of the Tukey HSD test indicated that on the MFVPT the difference between the middle and high groups was significant at the .05 level and the difference between the low and high groups was significant at the .01 level (see Table 1). On the VMI the only difference which reached significance was between the low and high groups (.05) (see Table 2).

Table 1
Tukey HSD Test for Differences
Among Groups on the MFVPT

	\bar{X}_1	\bar{X}_2	\bar{X}_3
$\bar{X}_1 = 24.35$	-	1.49	5.70**
$\bar{X}_2 = 25.84$		-	4.21*
$\bar{X}_3 = 30.05$			-
** $p < .01$ * $p < .05$			

Table 2
Tukey HSD Test for Differences
Among Groups on the VMI

	\bar{X}_1	\bar{X}_2	\bar{X}_3
$\bar{X}_1 = 11.15$	-	1.20	3.42*
$\bar{X}_2 = 12.35$		-	2.22
$\bar{X}_3 = 14.57$			-
* $p < .05$			

At first glance, it appears that children of varying reading performance levels scored differently on perceptual and perceptual-motor tasks. However, further study of the obtained data suggests otherwise. As was pointed out by Larsen et al (1976), it is important that the results obtained be viewed in relation to their educational significance. The question of whether a difference of several points between the groups of children of varying reading levels constitutes a sufficiently large discrepancy to justify providing specific educational programming must be seriously considered. It is unlikely that these differences would be very useful when applied to large

groups of children. The examination of each child (both through observation during testing and through error analyses) needs to be considered individually to determine whether any educationally valuable information can be inferred from the testing (Larsen et al, 1976). The findings of this study considered in conjunction with the findings of previously reported research (e.g., Harber, 1979; Larsen et al, 1976) causes the writer to seriously question whether specialized perceptual and perceptual-motor training can be justified. It is further suggested that remediation should focus on specific reading skills rather than on perceptual training.

REFERENCES

- Beery, K.E., Buktenica, N.A. Development Test of Visual-Motor Integration. Chicago: Follett, 1967.
- Bridger, W. Cognitive factors in perceptual dysfunction. Research Publications of the Association of Nervous and Mental Diseases, 1970, 48, 255-265.
- Cohen, S.A. Studies in visual perception and reading in disadvantaged children. Journal of Learning Disabilities, 1968, 2, 498-503.
- Colarusso, R., Hammill, D.D. The Motor Free Visual Perception Test. San Rafael, California: Academic Therapy, 1972.
- Dunn, L.M., Markwardt, F.C. Peabody Individual Achievement Test. Circle Pines, Minnesota: American Guidance Service, 1970.
- Gupta, R., Ceci, S.J., Slater, A.M. Visual discrimination in good and poor readers. Journal of Special Education, 1978, 12, 409-416.
- Hammill, D.D. Training visual perceptual processes. Journal of Learning Disabilities, 1972, 5, 552-559.
- Harber, J.R. The effectiveness of selected perceptual and perceptual-motor tasks in differentiating between normal and learning disabled children. Learning Disability Quarterly, 1979, 2, 70-75.
- Lahey, B.B., Lefton, L.A. Discrimination of letter combinations in good and poor readers. Journal of Special Education, 1976, 10, 205-210.
- Lahey, B.B., McNeese, M.P. Letter-discrimination errors in kindergarten through third-grade: assessment and operant training. Journal of Special Education, 1975, 9, 191-199.
- Larsen, S.C., Hammill, D.D. The relationship of selected visual perceptual abilities to school learning. Journal of Special Education, 1975, 9, 281-292.
- Mann, L. Perceptual training: misdirections and redirections. American Journal of Orthopsychiatry, 1970, 40, 30-38.
- Vellutino, F.R. et al. Has the perceptual deficit hypothesis led us astray? Journal of Learning Disabilities, 1977, 10, 375, 385.
- Wallace, G.P., Goldsmith, S.C. Language-based learning disabilities: Reading is language, too!, Journal of Learning Disabilities, 1977, 10, 178-183.